MONOGRAPH.

ART. X.—*On Diseases of the Fœtus. A contribution towards a better acquaintance with Intra-uterine Pathology.* By WM. C. ROBERTS, M.D., of New York. (Continued.)

THE first part of this essay appeared in the number of this Journal for August 1840. The latter portion could not then be got ready in time for the press, and owing to various circumstances, its publication has necessarily been deferred until now. This is, however, less to be regretted, as it enables the author to continue his quotations up to the present date.

Pancreas.—The only instances of congenital disease in this organ, with which I am acquainted, are related in Cruveilhier, *Anat. Path.*, 15 Liv. Pl. 1, Obs. 6 and 7, and Pl. 2d. In the first of these, the pancreas is said to have presented a lardaceous, non-glandular appearance, similar to that of a scirrhous breast, and was very large. In the second, it was in a state of scirrhous induration, and the case is pronounced by the author to be one of the most curious he knows of. In the third, it was large, indurated, not glandular, and of scirrhous aspect.

Kidney.—The malformations of this organ may be arranged as follows. 1st, their entire absence, one most commonly, the left according to Meckel, and very rarely both being absent. In the *Eph. Germ. Dec.* 1, Ann. 2, Obs. 22, is the case of a fœtus born at the full time, in which the anus was imperforate; *no trace whatever* of the *kidneys, ureters*, or urinary bladder was met with, but the rectum presented a sort of cæcal appendage, or round diverticulum, which occupied the place of the bladder. The supra-renal capsules were larger than natural. 2d, their misplacement, and, as is generally found in such cases; 3d, their fusion into one, forming the horse-shoe kidney. Supernumerary ones may be found. M. Petrequin, of Lyons, in a paper in the *Gazette Méd.* April 1st, 1837, entitled "A memoir on some remarkable cases of organic anomalies," mentions the case of a man aged 55, in whom the right kidney was provided with two ureters, and the left had two pelves, and two ureters. Of this, I have myself met with a case. M. P. cites Lauth and Lediberder for similar cases, and gives a second in which the ureters of one side bifurcated at their origin; and afterwards united into a single tube. In the 4th vol. of the *Am. Journal of the Med. Sci.* will be found, extracted from a German Journal, a case by Osiander of difficult labour from the great distension of the abdomen by the kidneys, *which were as large as in the adult.* A similar case is copied into the *Br. and Foreign Med. Rev.* for Jan. 1841, from the *Neue. Zeitschrift.* Band viii. S. 384. It is reported by Oesterlen. The fœtus was still-born and weighed 9 pounds; on opening the abdomen nothing was to be seen but two large bodies, one at each side of the cavity, which had forced the liver up close under the diaphragm. These were the kid-

neys. They resembled each other exactly in size, structure, colour, and form. Their shape was natural, and they were both divided into lobules, as is usual in the fœtus. They weighed 9 oz; were 5½ inches long, 4 broad, smooth, of a red colour, verging on violet, studded everywhere with little granules of a dark blue, or gray colour. These were *hydatids*, which, on dividing each kidney, were seen to occupy the whole of its substance. The smallest presented a diameter of less than ¼ of a line; the largest of about two lines, the former being towards the surface and the latter toward the centre, spherical and perfectly transparent.

The pelvis of each kidney was small and filled with transparent fluid. The only remains of the true parenchyma of the kidneys consisted of a firm fibrous reddish tissue, by no means abundant. They were well supplied with blood. The bladder contained only a few drops of a perfectly limpid fluid. All the other organs were natural. The labour was impeded by the size of the abdomen. Sœmmering, on the 76th p. of the catalogue of his Museum, has inserted the following. "Fœtus maturus, permagnus, abdomen renibus ingentibus tumidum."

The pathological conditions are as follows: 1, Ramollissement. 2, Calculus. 3, An encysted, or hydatid condition. 4, Granularity. 5, Inflammation. 6, Icterie discoloration.

I have elsewhere mentioned a dissection related by Morgagni, in which, on the slightest touch, the substance of the kidney was effused in the form of red poultice; and Billard states that he has often seen them "falling easily into pap." Hoffman, 6 vol. *Opera Omn.*, says Andral, in his *Anat. Path.* vol. ii, p. 705, relates a case of calculous concretion found in the bladder of a female child which died at 3 weeks old, whose mother, a German princess, presented all the symptoms of calculus in the kidney. It was as long as a large peach pit. Denis also found, in a child who died in a few days after birth from an intestinal disease, several calculi in the bladder, pretty large. In one of Billard's cases of diseased kidney yet to be mentioned, much fine sand was found in the bladder, in the urine, but he had never seen calculi properly so called. Prael, according to Grætzer, mentions a case where there were many congenital calculi in both kidneys. The child died when six months old. Orfila is, by the same author, said to have found them in the bladder in two cases, and also in the kidneys. The kidneys were congested and friable, and the bladder inflamed. (*Grætzer die Krank. des Fœtus. Berl.* 1837.)

The encysted Kidney.—Two interesting cases of this affection, I shall abridge from Billard, Obs. 53, p. 344, Stewart's Trans.—"A child, four days old, strong and florid, had a rounded tumour in the lumbar region, offering in its centre a reddish excoriation, and in its circumference, a hard, red, uneven ring. It died in a month, and on dissection there was found a considerable effusion of serum in the lateral ventricles, along the spine, and in the tumour which existed in the lumbar region, on a level with a separation of the spinous apophyses, of the last lumbar and first sacral vertebræ. The left kidney consisted of a mass as large as a goose's egg, of semitransparent globules irregularly agglomerated, forming as many cysts full of an inodorous fluid. These cysts all intercommunicated. Those nearest the pelvis opened into that reservoir, which was similarly filled. The kidneys presented nothing of its natural structure; near its fissure a layer of pretty thick, and as it were, condensed cel-

lular tissue was observed. In this tissue terminated, and even obliterated, the renal artery and vein. The pelvis, not communicating with the ureter, formed a true cul de sac. The ureter was well developed near the bladder, into which it opened as usual, but ascending towards the kidney it degenerated into two very thin, small cords, bifurcated and imperforate, and near the pelvis their filaments were multiplied, and applied themselves to the kidney in the form of the pes anserinus. The right was larger than usual. The bladder, very small, contained turbid urine, in which was found a great deal of gravel as fine as sand. The obliteration of the ureter was probably the cause of the dropsy of the kidney." Obs. 54, p. 345, Stewart's Trans. A male still-born child presented the following appearances. The belly, excessively inflated, formed a very projecting conical tumour. A vast pouch filled its cavity, and the intestines were pushed backwards and upwards. On the lateral parts of this pouch and rather in front, were attached and spread out the vesicula seminales, whose seminiferous ducts, very thin and much elongated, passed to the lower and lateral parts of the cyst, in which the testes were found. Lastly, near the summit of the so called cyst, and directly between the two seminal vesicles, the rectum, very large and much distended, with meconium, applied itself and adhered solidly, becoming obliterated, to the wall of this voluminous pouch, which was recognised to be the bladder, enormously distended by a white, inodorous, neutral fluid, containing flocculi of mucus with which its inner walls were lined. *The internal orifice of the urethra did not exist.* A probe passed in only half an inch; beyond this was only an elongated, narrow filament, lost in the cellular tissue of the perineum. Unless a reddish tissue placed on the bladder, behind the insertion of the rectum, could be considered as such, no prostate gland could be found. The ureters opened naturally into the bladder, and were large, and went on insensibly increasing up to the kidneys, which, on each side, were nearly as large as a hen's egg, and presented the same lobular structure as in the preceding case. The lobules, however, were smaller, less transparent, and were found, partly covered by the cortical substance, but the calyces and pelves were wider, and more distended than usual. A white, inodorous fluid filled the vesicular lobules, which all communicated and opened into the pelvis. The urachus was only a small obliterated duct. The rectum ended in a cul de sac adhering to the bladder, and there was no anus.

In a paper by Dr. Robert Lee, in the 19 vol. of the *Med. Ch. Trans.* on the functions of the fœtal kidneys, " it is stated, that Mr. Hay delivered a patient of a still-born child which had club feet, harelip, and a large belly which arose from an accumulation of fluid within the kidneys, produced by impervious ureters. The right, which resembled a cyst filled with a watery fluid, was larger than the head, and contained ℥ix of fluid. The left was half as large, and contained ℥iv; it resembled urine. In a MS. vol. of dissections of morbid parts, by Mr. Wilson, it is noted that " in Jan. 1787, Mr. Cruikshank delivered Mrs. Tylcotte, of Oxford Road, of a child apparently well, which, however, died in a quarter of an hour after it was born. He opened it the day after, and found both kidneys gone entirely into *hydatids*, (probably cysts, auth.) and enlarged both of them to the size of a man's. The ureters were exceedingly convoluted and distended, and filled with fluid, as was the bladder prodigiously enlarged; also the muscular fibres upon the stretch and exceedingly distinct, nearly

the size of a man's." In this case neither the ureters nor urethra are stated to have been impervious. Mr. Howship, in his Pract. Treatise on the diseases of the urinary organs, 1823, p. 376, relates a similar case. A male infant was born alive in the eighth month, and died the same evening. The lower part of the abdomen was occupied by a large circumscribed tumour. Dividing the parietes, this protruded, white, elastic and filled with a fluid. On each side was a long membranous tube, long as the finger and curiously contorted, evidently filled with fluid. The central cyst was comparatively dense, firm and opaque; the convoluted tubes much thinner, and nearly transparent. They terminated above, on each side the loins, in what appeared to be a mass of small hydatids; below they passed into the pelvis with the principal tumour. These were the bladder, kidneys, and ureters, excessively distended. The external orifice of the urethra was *imperforate*, and on introducing a fine silver probe from the bladder, it appeared that the canal was *impervious for a quarter of an inch*. The bladder contained seven or eight ounces of urine, its coat extremely strong and thick. Posteriorly it had given way, and a large pouch had formed. The kidneys had lost all appearance of natural structure, and resembled a congeries of small hydatids, no larger than peas, loosely connected by a cellular texture. Dr. Ivanove, of St. Petersburg, on examining Mr. H.'s drawings of the preparation, stated that he dissected a full grown child who lived forty-eight hours, when, *the urethra being imperforate*, the bladder was much and the ureters still more distended with urine. Sir B. Brodie informed Mr. H. that he had seen a full grown male child in whom the external orifice of the urethra was deficient from original malformation, in whom the bladder, ureters, and the infundibula and pelvis of each kidney were distended with urine.

Under the head of Scientific Intelligence, in the Transactions of the Dub. Path. Soc. (*Dublin Journ. Med. Sc.* 1840,) it is stated that Dr. Kennedy exhibited a preparation from the body of a new born infant in which there was enormous distension of the bladder and ureters, with *obstruction of the urethra*. The ureters were distended to a remarkable degree, an inch in diameter and exceedingly tortuous. The bladder was greatly enlarged and the left *kidney dilated*, the enlargement being produced by distension of its pelvis and infundibula, for the substance of the organ had been considerably diminished by absorption. No traces whatever of urea could be found in the fluids of either organ, after a most careful analysis. "The case," continues Dr. K., "seems to confirm the idea that the secretion of urine goes on before birth, for if this were not the case, how can the condition of the bladder and ureters be explained?" He adds, "the fact of the non-existence of urea is curious, and the case is perhaps the only one no record, in which the fœtal urine has been tested." From this remark I should infer that Dr. Kennedy was unacquainted with Dr. Lee's paper in the 19th vol. of the *Med. Chir. Trans.*, recently quoted, in which he deduces the conclusion that the kidneys of the human fœtus are in a state of activity and perform their functions previous to birth. In it is a letter from Dr. Prout, containing an analysis of the fluid found in them in Mr. Hay's case, which evidently contained urea, and proved beyond all doubt that it was of a urinary nature. In a case also cited from Mr. Howship's work, the urine was examined by Mr. Brande, and found to have the other properties of urine, but to have *no uric acid* in its composition.

In the *Gaz. Med.* for 1835, is related the dissection of an extraordinary monster, born at Boulogne, weighing 13 livres, who, among many other malformations, had the kidneys *granular* and hydatidous. Inflammation of the kidneys and bladder in the fœtus is considered by Billard as probable, but difficult of proof. Congestion and ecchymosis are common, together with red points in the mamillary substance, almost like petechiæ; and once he found petechiæ, properly so called. In icteric children striæ are seen of a dazzling yellow colour, owing to the discoloration of serum between the fibres of the mamillated structure. Betschler (*Diss. num a fortu urina secernatur et urina excernatur*, Berd. 1820, p. 48,) dissected a stillborn fœtus whose bladder contained a large quantity of puriform matter mixed with urine. The internal surface was white and smooth. The orifices of the ureters free and gaping. The left kidney, *inflamed*, was distended and degenerated. The pus which escaped from it had passed by the ureter into the bladder. Oehler saw a case of nephritis calculosa in a fœtus, where the kidney was very much inflamed. (Vide Prolegomena Bibliography in part preceding.)

Capsula Renales. M. Andral Jr., found one of the supra renal capsules of the fœtus of a woman who died of phthisis, in the sixth month of her pregnancy, inflamed and suppurated. M. Rayer, in a memoir in the Oct. No. for 1827 of *L'Experience* or *Journ. de Med. et de Chir.* entitled "Illustrations of the Pathology of the supra renal capsules," informs us that he has several times discovered a sanguinolent infiltration of the supra renal tissue, in new born infants who have died soon after birth. Twice he has met with the capsule transformed into a genuine sac, or pouch, as large as a pigeon's egg, and full of blood, and has seen one or two examples in the fœtus, of a small abscess being formed in its substance.

Ureters. The malformations of these organs are their being double, bifurcate, or united by a transverse duct, or their opening into an unnatural part; thus, Lieutaud has seen them open into the urethra itself. The following case of congenital enlargement of the ureters, by Dr. James Webster, occurs in a periodical which enjoyed but a brief existence, the *U. S. Med. & Surg. Journ.* June, 1835." A lady of Philadelphia, during my residence there, was delivered of a healthy child. Two weeks after birth, the child having made no water for two days, a large fluctuating irregular tumour was found, occupying the lumbar and iliac regions, *which disappeared next day after a copious flow of urine.* This occasionally recurred. At 18 months of age, the child died of long continued irritation. The ureters were enlarged to nearly double the size of the large intestines, and completely distended with urine. At their exit from the pelvis, they partially covered the kidneys, at their entrance into the bladder they were small, and their valvular structure entirely preserved. The bladder was larger than natural, but bore no appearance of inflammation." Of the condition of the kidneys nothing is said. It differs from Cruikshank's case in the healthy state of the kidneys and bladder, in neither were the ureters imperfect.

The following case is related by Mr. Thurnam, in the *Lond. Med. Gaz.* August 1837, p. 717. "In a male child, aged four months, it had been noticed that at birth a tumefaction of the lower part of the abdomen existed, looking like two or three bladders. When these were rubbed the bladder would swell and rise up under the hand, to the size of a large egg. He gradually wasted and died with aphthæ and diarrhœa. Upon laying open

the abdominal cavity, the urinary bladder was seen of at least treble its natural size, rising up nearly to the umbilicus. The right kidney was in a state of *complete atrophy*, less than a fourth of its proper bulk, its tissue presenting a granular hardness, and exhibiting no trace of division into cortical and tubular structure, and with no trace of supra-renal capsule. The commencement of an excretory duct was present, in the form of a very small pelvis, which contained a few drops of a dirty mucous fluid; below this, the ureter was represented by a thin impervious cord for about an inch, but the lower part of the ureter, for the length of two or three inches, was pervious, and of much greater calibre than usual, admitting, as it would, a large swan's quill. It opened into the bladder in the ordinary manner. The left kidney was about double its normal size, and presented, in a remarkable manner, the lobulated character; the fissures between the lobules being of great length. It was surmounted, as usual, by a supra-renal capsule. The appearance of cysts, filled with fluid, was seen to depend upon a *most surprising dilatation of the left ureter*, which had more resemblance to the small intestine than anything else. The dilatation was interrupted in three places by constricted portions; the central one of which, situated about midway between the kidney and bladder, was nearly half an inch in length, and was contracted to such a degree as not to admit a fine probe, and through this portion the urine could only be forced by considerable pressure. The other two contractions were to much less extent; the upper would have allowed the passage of the little finger, the lower, of a large bougie. By means of these three constrictions, the ureter was divided into four portions, or chambers, of irregular shape and size, which opened successively into each other. The whole canal was considerably lengthened, as well as dilated, being thirteen inches long, the dilated portions being folded upon themselves. This ureter communicated with the bladder by a larger and less oblique opening than normal. The muscular coat of the bladder was hypertrophied in a proportion corresponding to the dilatation of its cavity, and contained four or five ounces of turbid urine having an acid reaction. No case precisely or even tolerably similar to that above narrated, has been recorded. Sandifort, in his *Obs. Anat. Path.* vol. iii, table 4, gives an interesting description of a seven months fœtus, malformed in several respects, in whom the kidneys were united by a transverse band, and the left ureter was extremely dilated and tortuous, the dilatations alternating with slight constrictions, whilst, on the right side the dilatation was still more extensive, especially in the upper half of the ureter, which was more than two inches in circumference, and at its centre was of smaller calibre than natural. In the German *Eph.* Dec. 1, Ann. 1, Obs. 7, is the history of a double monster whose ureter was so excessively dilated as to look like a second bladder. In the same work, Dec. 2, Ann. 9, Obs. 12, is narrated the dissection of a girl aged three months, in whom the left kidney was furnished *with two ureters*, one of the usual size, *the other*, extraordinarily dilated. The kidney consisted of two portions, each having its own ureter and emulgent artery.

Bladder. The congenital malformations are, 1. Hypertrophy; 2. its division into compartments by septa; 3. supernumary pouches; 4. atrophy; 5. bifurcation (Meckel); 6. Ectropia, or Extroversion; 7, its total absence. I have already mentioned cases of its rupture, (Vid. the section on Peritonitis) and of its prodigious enlargement. I shall cite one from Andry, which he calls *inflammation*, but which to me seems in no respect to differ

from that seen by Cruikshank, in the encysted condition of the kidneys and great development of the muscular fibres of the bladder, accompanied by peritonitis. It is by Moreau, in *Mem. de l'Ac. R. de Med.* 1828. "A small child was born having a large belly inordinately distended with fluid. It died in 30 hours, and on opening it, near one pint of reddish yellow serosity was found in the peritoneal cavity, the intestines being no bigger than a lumbricus, and containing no meconium. The bladder was distended so as to reach above the umbilicus, its walls thick and hard, spotted with red points, the muscular columns fleshy. The ureters were as large as the little finger, and the kidneys very large and like too large cysts."

Ectropia is an absence of the anterior wall of the bladder, and consists in a red tumour of mucous appearance, situated at the bottom of the abdomen, in the place usually occupied by the linea alba, recti muscles and symphysis pubis, and having its margin continuous in the skin of the surrounding parts. The urine constantly trickles from the tumour, which is the posterior wall of the bladder. A very marked case of this malformation is detailed with his usual minute accuracy, by the celebrated Dr. M. Baillie on p. 167, vol. i, of Wardrop's edition of his works; and he mentions two others. A case universally quoted, is that by Dr. Duncan, in the *Ed. Med. and Surg. Journal* for 1805. It was first, however, described in Tenon in the *Mem. de l'Acad. des Sc.* 1761. Chaussier had seen it often, and Breschet's paper is made up of his observations and preceding cases. See also the *Dict. des Sc. Med.* vol. xiv. Schmitt, of Wurzburg, in 1836, published a work on this subject, in which very accurate information is contained as to the nature and varieties of this malformation; three cases are described, and a catalogue of those previously recorded, presented.* A bibliographical notice of this work will be found in the *Am. J. of Med. Sc.* for May, 1837, p. 184. Fleishman has recorded a case in which no trace of urinary apparatus was discovered.

Baillie had seen a case in which one vesicula seminales was wanting, and another in which both ended in a cul de sac.

Testes. These are sometimes originally very small, and one or both may remain in the cavity of the abdomen. I know of but two instances of their having been found diseased. One occurs on the 76th page of Soemmering's catalogue, in the description of a large mature fœtus, of which, among other diseased conditions, it is said, *testiculi in hydatides conversi.* The other is a case of congenital hydrosarcocele in the Edinburgh Essays, so enormous as that it had to be punctured before the delivery could be effected. Hydrocele of the tunica vaginales is frequently congenital, and occasionally complicated with inguinal hernia in the fœtus. The testes have been found ieteric and ecchymosed. Haller, in his Physiology, Liv. ii, 7, p. 412, mentions several cases in which four or five testes, were known to exist. Loder (Gottingen, Ann. 1802) exhibited to the Academy, a child in whom there were four testes, two penises and two scrotums. The malformations of the penis and urethra, and female genital organs,

* [See also *Med. Repos.*, (New York,) 2 Hex, vol. ii, p. 96; *Lancet*, April 11, 1840, p. 110; *Edin. Med. and Surg. Journ.*, an. 1803, p. 82, and Oct. 1839, p. 422; *Cyclopedia Anat. Phys.*, art. Bladder, Abnormal Anatomy; *Rev. Med.*, July, 1833, p. 61; and the *Amer. Journ. Med. Sci.*, Aug. 1832, p. 481. Dr. Hayward showed us a case of extrophia of the bladder, some years since, in his wards in the Mass. Gen. Hospital, an account of which we believe he has published.—Editor.]

I shall pass over, as they do not come within the limits of fœtal pathology. I may just allude to those cases of congenital *phimosis*, in which the complete closure of the prepuce by a thin membrane, gives rise to a retention of urine after birth, and requires a slight operation for its removal, and, as it occurs in a work not generally known, and is somewhat peculiar, I shall quote from J. Cloquet's thesis on surgical pathology, Paris, 1831, the following mal-conformation of the prepuce. "The child, fifteen months old, was born with the deformity for which M. Dubois' advice was asked. The integuments of the penis offered a rounded aperture, through which the glans issued in the form of a red tubercle; the folded prepuce hung below it, and extended beyond the glans; it was imperforate at its extremity." With regard to the uterus, Boivin and Duges, vol. i, p. 202, of their treatise on the Dis. of the uterus, give three cases of antiflexion, presumed to be congenital. They speak also of a congenital coalescence of the labia, enclosing a loop of intestine, or omentum, resembling a testis; of congenital brevity of the vagina and congenital prolapses uteri; p. 105, vol. i. In Dr. Simpson's second communication he observes, p. 29: "I have formerly detailed a case in which some patches of coagulable lymph adhered to the right fallopian tube of a fœtus in utero, of seven months," and in a note on the same page, he says, "I have in my possession a preparation, showing a well marked anteversion of the uterus in a fœtus, in consequence of either an original, or a morbid shortening of its round ligaments."

Having completed my observations respecting the organs contained within the abdomen, I come next to the chest; and first, of *pleuritis*. Mauriceau first mentioned the possibility of the occurrence of this disease in the fœtus. The work of M. Veron, previously mentioned, contains a case of one which lived 15 hours, and presented the diverse alterations which characterize pleurisy, viz:—effusion of fluid into the right cavity of the chest, the formation of nearly completely organized false membrane, red and injected, on the pleura. The lung was compressed and crowded back, small and dense, and sunk in water. Billard (*Stewart's Trans., Obs.* 64, p. 398,) has detailed a case of congenital pleuritis. The child, aged two days, was pale, very thin, and breathed with difficulty; the pulse was remarkably irregular; the face at certain moments strikingly contorted. The chest gave a dull sound on its left side, and the vesicular murmur was scarcely audible with the stethoscope. It died in two days. The costal and pulmonary layers of the pleura were of a punctated, dull red. The former was as thick as a farthing, and adherent to the lungs by cellular adhesions, as solidly organized as they are found in the adult after eight or ten years. In the thickness of the pleura were many little granulations, and here the adhesions were more recent, being of an albuminous consistence. The tissue of the lungs was strongly congested. In the ileo-cæcal region were 15 follicular plexuses, very prominent and brown. This is one of the cases which strongly shows the necessity of endeavouring to ascertain the causes of congenital weakness. In the 15th liv. of *Cruveilhier's An. Path., Obs.* 1, is a case of double pleurisy in a child 36 hours old. The case was characterized by a lactescent effusion and false membranes; the base of the lungs inflamed. The *Med. Gazette* for Jan. 1840, contains the following case, read by Dr. Burgess to the Royal Med. and Ch. Soc.—"A child was born after only a trifling delay in the labour, pale and cold, its mouth drawn aside, its

hands clenched, and soon died. There was a large serous and bloody effusion beneath the scalp under the arachnoid, with injection of the plexus choroides, and also a very large quantity of serum in the pleural cavities." Dr. B. cites Gardien for a similar case.

Lungs.—The pathological states of these organs hitherto discovered, are tubercles, inflammation, (hepatization, suppuration, abscess,) and hernia. Husson, in *Commun. Orales à L'Acad.*, April, 1825, stated that he had recently observed two fœtuses, one of eight months, and one which lived eight days, in the former of whom there were tubercles in the lungs, softened and already suppurated, the latter in the liver. "In 1826," says Billard, "I met with four cases of pulmonary tubercles in children aged one, two, three, and five months; though born healthy, they soon wasted away." Were these congenital? Langstaff (*Cooper's Surg. Dict.*, vol. i,) had seen three cases of this kind. "I have met," says Andral, (*Path. Anat. Trans.* vol. ii, p. 539 and 703, chap. v, Diseases of the Fœtus and its Appendages,) "with several large abscesses in one lung having no resemblance whatever to tuberculous excavations. I believe that such an appearance has never yet been observed at any other age. He also mentions *petechiæ* of these organs and of the heart and pericardium—vol. i, 418. He had also seen two cases of hepatization. Billard remarks, that in three children who died on the first day after birth, he found an alteration of one of the lungs so profound as to make him believe that the disease had commenced intra uterum. In two particularly, the left lung was strongly hepatized at its base. The 63d obs., p. 397, Amer. edit. of his work, trans., is one of congenital pneumonia. The child was small, pale and thin, presenting all the symptoms of pneumonia. The right lung was hepatized in the greater part of its extent. At the base there existed a spot larger than a large nut, at which the tissue was reduced to a reddish pultaceous pap. The bronchi which entered it were inflamed and thickened, containing thick mucosities, puriform and gluey, mixed with streaks of blood. (Vide *Cruveilhier, Obs.* 7, post, "Cong. Bronchitis and Pulmonary Catarrh.") The 15th liv. of Cruveilhier's great work is rich in cases of this kind. Pagé four is devoted to "the Diseases of the Lung in the Fœtus," and he remarks that as many new born children die by the lungs as adults. Obs. 1, fig. 1, pl. 3, is one of lobular pneumonia disseminated infiltration of blood; death in 48 hours. Obs. 2. Lungs infiltrated with blood, and impervious in three-fourths of their extent; death in 20 hours; fig. 4, red and black induration. These cases he considers to have occurred at the moment of birth. Obs. 4 and 5. "In the state called the pneumonia of children." Obs. 6. Gray induration in four-fifths of their extent, dating several days back; child feeble, dying in 48 hours. Obs. 7 and 9. Some lobules infiltrated with pure blood, others with sero-sanguineous fluid; pulmonary catarrh, with thick mucus in the bronchia. (Billard mentions œdema of the lungs in conjunction with scleroma.) Obs. 10. A dozen little spherical masses (lobules) in the midst of them; depôtes of thick pus. Plate 2, fig. 1. Lungs of a new born child which died in 24 hours after birth; here and there masses of lobules infiltrated with blood, and impermeable; fig. 2, red induration; fig. 3, sero-sanguineous infiltration throughout; fig. 5, spherical, grayish, semitransparent induration, of varying bulk, very dense, disseminated in the thickness of the lung, a state between pneumonia and tubercles; fig. 6, the two lungs very voluminous and completely fleshy, (Camisiés;) the lobular form com-

pletely preserved. Each lobule presents a granulation analogous in appearance to the large glandular grains of a liver in a state of cyrrhosis. The last case is one of whitish-gray induration of the lungs, in the thickness of one of which was a cartilaginous kernel. The bronchi clogged with mucus. Rahn Escher, in a Zurich journal, republished in the *Gaz. Méd.*, July 1833, mentions a remarkable congenital contraction of the chest, and that the texture of the lungs was coarser than natural. The child had dyspnœa, and died of inanition in 20 weeks. Also a second case of congenital flatness, compactness and irrespirability of the right lung, which was not hepatized; and from this circumstance and the development of the chest, he considers it a case of anti-natal disease, occurring soon before birth. The child always laboured under dyspnœa, and died at two and a half years of croup. Haller remarks, that hernia of the lungs, from absence of the ribs, sternum and parietes of the chest, compared with that of the walls of the abdomen is rare, but cites instances, "ut nudum apparet, quale in pullo est," during the first days of incubation.

Thymus Gland. The congenital enlargement of this organ (Hypertrophy) is now well known to the profession, by the writings of Dr. Montgomery, of Dublin, and others. The paper of the first named author may be found republished in the *Am. Jour. of the Med. Sci.*, for Feb. 1837, and I may refer to the Aug. No. of the same journal of the same year, and that for Nov. 1838, for cases which I have myself recorded, attended with peculiar circumstances, and also to one in the third No. of the *New York Jour. of Med. and Surg.*, Jan. 1840, to which similar ones are appended by Drs. Sweet and Clements. This organ has been found *inflamed* at birth. Cruveilhier's 15 liv. contains a case in which a purulent deposite occupied the thymus, which was very voluminous, filling the anterior mediastinum, called by him tuberculation, or chronic inflammation. The pancreas was indurated and the lungs impervious. In a six months fœtus, the thymus, according to the same author, was double its natural size, full of purulent deposits and tubercles. Fig. 2. of plate 2, represents a very large thymus, dense and of tuberculous appearance, which covered the heart. Fig. 3, a thymus containing cavities filled with white mucus, the walls infiltrated with concrete pus. In M. Veron's paper is mentioned the case of a child which lived a few hours, whose thymus was inflamed, large, and of a deep red, with pus in its interior. Billard (p. 452) had seen it in two instances, much tumefied, very red, and extremely friable.

Heart and *Pericardium.* The inexhaustible catalogue of malformations of these organs, except ectopia, I shall omit, and merely relate the pathological states which have come to my knowledge. These are, 1. Scirrhous tumours. 2. Aneurism. 3. Pericarditis.

Ectopia Cordis. This malformation is not very common, as it is not necessarily fatal, nor accompanied by other malformations, and is, in a physiological point of view, of extreme interest, as furnishing an opportunity of observing the heart's action by the eye, and discovering the causes of its sounds. I shall briefly allude to some cases of the kind. It may be met with under three conditions; 1. occuring within the body, and presenting no peculiar external signs. Thus Andral, *An. Path.* trans. vol. ii, p. 335, relates that Drs. Echamps, de Leval, *Journ. Gén. de Med.* vol. 26, found the heart below the diaphragm, occupying the place of the left kidney, in a middle aged man. 2. Where it protrudes externally some-

where, covered by integuments, more or less thin. Thus Andral also states, that a female infant mentioned in the *Journ. of Med. Soc.* of Bordeaux, 1825, had at birth a pulsating tumour formed by the heart, extending from the false ribs to the umbilicus. She lived two years and a half, and on examination after death, it was found that the heart had pushed down the diaphragm before it. In the *Bull. de la Fac.* vol. iii, p. 457, is a case of deficiency of the cartilages of the left side, which do not reach the sternum, leaving a considerable void, filled by the lung in full inspiration. The thorax on the right side projects in a convexity, within which the heart is distinctly felt to be placed. In the 4th vol. of the same work, p. 93, Chaussier describes a new-born child, who had at the upper and anterior part of the abdomen, a soft hemispherical tumour, an inch high and two wide, in which, by mere pressure, were very evidently to be distinguished the form and alternate movements of elevation and depression of the heart, and the dilatation and contraction of the ventricles. In a word, the child had congenital hernia of the heart. It could be pushed back into the thorax, but on taking off the pressure, returned with noise. The sterno-pubic muscles were either separated, or deficient, for the heart was covered only by the skin. The child seemed likely to live. The same illustrious anatomist saw a soldier, 27 years old, and capable of great exertions, who had a deficiency of the lower half of the sternum and cartilaginous parts of the second, third, fourth, fifth, and sixth ribs, in which oblong space, covered only by skin, was seen the heart, beating in the most perceptible manner. Ramel mentions a girl 11 years old, in whom the heart was situated in the epigastrium, below the diaphragm, and who was in tolerable health. *Journ. de Méd.* vol. 49. In the No. of the *Am. Journ. of the Med. Sci.* for Nov. 1838, copied from an English journal, (the *Trans. of the Prov. Med. and Surg. Ass.* vol. vi,) will be found a case of partial ectopia, by Dr. John O'Brien, in a child aged 14 days, which died at the end of three months. A soft, oval, semitransparent, unequal tumour existed between the umbilicus and lower end of the sternum. Through this diaphanous skin, in the upper quarter of the tumour, was seen the heart. This paper is of the highest pathological and physiological interest. In the same Journal, for Feb. 1840, is a case from a German journal, in which the heart, and under it the stomach, both separated by a partition, lay outside the thorax and abdomen, in a sac of skin nearly transparent. The lower third of the sternum, and upper part of the abdominal parietes, were deficient. The fissure was 5½ inches long, and 2¼ broad. The child was living, and otherwise in good health.

The *third state* is that in which the heart is entirely naked and exposed. Thus, Vanbonasi, in the *Ac. des Sci.* 1712, describes an eight months fœtus, whose heart escaped by an opening in the upper part of the chest, naked and hanging from the neck like a medal. Haller, in his *Disput.* vol. 9, details a case seen at Madrid, by Martinez. Tourlette, in the 62d vol. of the *Journ. de Med.* describes one in which an opening existed at the lower part of the chest, through which the heart issued and reached to the umbilicus: all these children died soon. Dr. Robinson, in the 11th vol. of the *Am. Journ. of Med. Sci.* 1832-3, has described a case in a full grown child. Both clavicles and the sternum, and cartilages of the ribs were deficient, exposing the whole interior of the chest. The heart was small, on the right side of the chest, and acting with perfect regularity. Several other malformations existed, and it lived but a short time. In the

Feb. No. for 1840, of the same journal, from a foreign periodical, is a case seen by Pecchiola; the child was full born, the heart protruding through a nearly circular opening of about an inch and a half, the margin regular, and the pericardium absent. The heart hung by its vessels, like a medal. The upper piece of the sternum was absent. It lived twenty-six hours. Otto, whose work is very rich in everything relating to this and every other vice of conformation, cites Haan, *de Ectopia cordis*, cas. illust. Bonn. 1825, prolapsed and deficient pericardium. Also, on p. 275, note 9, Buttner; the heart prolapsed, the child born alive.

Scirrhous Tumours.—This case is related by Billard Stewart's ed. p. 509, Obs. 86. The child was three days old when seen, and externally *embonpoint*. The lungs healthy; the heart of its ordinary size, offering at its anterior part, and on the interventricular line, three whitish eminences of unequal size, flattened anteriorly, and very close to each other. The largest was near the base of the heart, the next in size nearest its apex, and the smallest between them, imbedded in the thickness of the wall of the left ventricle and interventricular septum. Their deep surfaces projected on the inner side of the cavity of the heart. They "cried" under the scalpel, and presented closely interseeting fibres, closely analogous to scirrhous tissue.

Aneurism.—Billard, p. 447, Obs. 77. A child two days old. The heart was as large as a hen's egg, the right auricle and ventricle, formed, as it were, themselves the whole organ. These cavities were very much dilated, their walls almost as thin as a sheet of paper, while the opposite ones were very much contracted, and the walls hypertrophied. The interauricular orifice was almost entirely obliterated; the orifices and valves free. (Passive aneurism.) Cruveilhier, Liv. 15. Aneurism of the right cavities of the heart, resulting from obliteration of the pulmonary artery. Enormous development of the heart, particularly on the right side. The right auriculo-ventricular valve fixed to the walls, and its edges granulated.

Aneurism of the Ductus Arteriosus.—For this case, I am again indebted to the industrious Billard, Obs. 78, p. 448. The child was two days old, and died in three days afterwards, the respiration was difficult and the face livid. The heart was hypertrophied. The ductus arteriosus was as large as, and of the shape of a cherry kernel, its transverse diameter 3½ lines and its circumference 9 lines. Looking at it exteriorly, one would have said that it opened widely into the aorta, but this appearance existed only on the outside, for the inside was full of fibrous clots, organized and arranged in layers, as in adults, leaving a canal in the centre scarcely allowing of the passage of a crowquill into it. A similar case had been seen by Baron.

Pericarditis.—"I found," says M. Billard, p. 451, "in a child two days old, adhesions between the folds of the pericardium, sufficiently solid to induce the belief that they were the old products of a pericarditis developed during intra-uterine life. In six other cases there was sero-albuminous effusion into the pericardium, white flakes adhering to the surface of the heart, and very slight bands between the two larger layers of the cardiac envelope. It is a common disease in newly born children, but cannot easily be diagnosticated. M. B. had seen 7 cases in 700 bodies of dead children at the Foundling Hospital.

The anomalies of the arteries and veins, I pass over in silence. Oehler

has mentioned lymph-like concretions in the heart and large vessels, as large as beans and adhering by fibres.

I come, lastly, to a consideration of some morbid states of *the Spine.* Of the commonest of these, Hydrorachis, I have already spoken briefly. I refer to Billard, who treats fully of it, and relates a case in which a little thin, reddish, flexible pouch, as large as a filbert, below the fourth ventricle, interrupted the communication between the fluid in the brain and that in the spine. In the 6th and 16th Liv. of Cruveilhier's Pathology, are cases, descriptions, and beautiful plates of this disease. Ollivier, on this, as on every other point in spinal pathology, must be consulted. The malformations of the spinal marrow, I shall leave untouched. The 1st vol. of Ollivier's work, p. 209, treats of "Kirronosis, or icterie coloration of the medulla spinalis" in the embryo. Passive congestion, he remarks, is very common. I cannot decide whether the ramollissement and induration, spoken of by him and Billard, are to be considered as diseases strictly congenital, or not. The 15th Liv. of Cruveilhier contains a case of spinal arachnitis, in a child who died in five days. The spinal arachnoid was infiltrated with pus, as also the annular protuberance and along the fissures of the brain. Andry states that Lechel found a cyst containing fluid, lying between the spine and the dura mater, which was sound, and to him I am indebted for the following case of dystocia, caused by a cyst along the spine, recorded by Depareque, *Bib. Med.* vol. 73, p. 342.— "Mrs. B. having been in labour four hours, the shoulders had reached the vulva, but in spite of the contractions of the uterus, the efforts of the mother, and tractions on the axillæ, no progress was made. A soft tumour at the lower part of the spine, could be felt by the finger, and was mistaken for hydrorachis. It at length gave way, the child was removed. It remained asphyxiated for half an hour. A vast pouch as big as the child's head, arose from the lower and back part of the trunk, formed anteriorly by the integuments, which were flaccid and fell on the thighs. The base was bounded transversely by the trochanters, and reached from about eight lines above the anus, to the last dorsal vertebra. On the top, the integuments insensibly degenerated into a translucent membrane, one line thick, which had given way. The sac contained a few ounces of serous fluid; inside it was smooth, and seemed lined by a serous membrane. The integuments were enclosed in a ligature, and sloughed off, the cyst was injected, and the child recovered, but was soon after frozen to death, during the night, together with two other infants, while going in a cart to be placed out at nurse.

A more extended research, would doubtless have rendered more complete and copious, this summary of some of the instances hitherto observed, of disease, or malformation, in the fœtus; but I have already extended my paper to a length which endangers its being perused with patience. When I look back upon the facts which have been recorded, I regret that they are not of a more practically useful character, for they are certainly interesting. My task, however, has been, like that of the curator of a museum, to catalogue and arrange them, leaving to others the duty of employing them in the elucidation of fact, or the support of theory. Exclusive of their medico-legal value, one precept, at least, may be deduced from the cases thus assembled, that many of those cases of feebleness at birth,* apparently without cause, and generally looked upon as

* See Billard, Trans. p. 57, chap. 8, "of feebleness at birth."

hopeless, and treated by warmth, nourishment and the warm bath, in reality depend upon the actual existence of organic disease, of a congestive or inflammatory character, in some important tissue of the body, susceptible, in some degree, of appropriate treatment, and possibly, in some rare instances, of cure. One only, that of enteritis, related by Desormeaux, as yet exists. If, by the compilation of this article, I shall be so fortunate as to be the means of adding another to the list, and of exciting the attention of the profession to a more general and careful examination of the bodies of the still-born, or recently dead infants, the trouble it has cost me will be repaid. Little has yet been done; very much remains to do, and that, I trust, will prove both useful and interesting.

ADDENDA.

To the section on *Tumours*, the following reference, omitted. WALKER, *sur les tumeurs graisseuses congénitales, et sur d'autres vices de conformation, avec deux figures de Lepipomes monstreux, heureusement extirpés.* 8vo., Landshut, 1814.

In the article on the *Nose*, Andry is cited as having given from Voisin (thesis) a case of congenital polypus. For this, as for a very large number of the cases he has published, Andry is indebted to the article on the diseases of the fœtus, by Desormeaux, *Dict. de Méd.* 1st ed. vol xv, for which he does not make proper acknowledgment. The reader will find there a fuller account of this curious case, which abridged, is as follows. "The tumour was lobulated, of a purple colour, as large as a breakfast roll, covering all the anterior part of the face, filling the mouth completely, springing from the posterior fauces. It was a polypous mass, containing near its base a shapeless angular bone as big as a nut, with a sort of fleshy pedicle furnished with long hairs. Desormeaux is almost tempted to consider it as the debris of a fœtus *par inclusion*. Dict. 15, 403.

Abernethy (Lect. in *Lancet*, vol. x, 1827) knew a mother who had whooping-cough, to produce a child with the same disease at the time it first breathed.

Eye.—The Lancet for Feb. 8, 1840, contains an interesting course of Lectures on the diseases of the eye, by Mr. Walker, of Manchester, in the fifth of which is the case of a child attacked with purulent ophthalmia *before birth*, as far as he knows, the only one on record. When born, no inflammation existed, yet one cornea had sloughed; the eyeball had sunk. Half the cornea of the other one was opaque. He had also seen a child two or three days old, the cornea of each of whose eyes was opaque throughout, and unusually large and prominent. It subsequently resumed its transparency. He also speaks of congenital dropsy of the anterior chamber, citing Juengken, Ware and Lawrence, and Farar, in the *Med. Comm.* 1790, vol. ii, p. 463, who relates three examples in one family. Mr. W. has quoted Mr. F.'s own account, to which I refer. The curious reader will find these cases of Mr. Farar's elaborately commented on by Mr. Crompton of Manchester in the *Lond. Med. Gaz.* for Dec. 1840, p. 432, in opposition to an opinion of Mr. Middlemore's that they were merely the results of inflammation. Mr. Crompton also publishes two other similar cases, in brothers, about one of which scarcely any doubt can reasonably be entertained. I must refer to the article for further information. The right eyes of both were staphylomatous, the eyeballs imperfectly developed, and the left cornea opaque.

Skin.—Ollivier, note to Billard, Trans. p. 65. The dorsal surface of each foot in direct contact with the anterior part of the leg, and in the folds resulting from this forced flexion of the skin, two large ulcerations, gray at their bases, red and bloody at their borders, surrounded by areolæ of inflammation, and resembling burns.

Brain.—Billard, p. 474, Trans. M. Bérard, Jr., *Soc. Anat.*, 1828, had observed a case of true intra-uterine apoplexy in a fœtus of eight and a half months. The coagulum, about the size of a nut, was lodged in the substance of the brain. Quere? cerebrum.

Billard, p. 537. Congenital dropsy of the brain with a well formed cranium. See Breschet, sect. on Hydrocephalus.

Breast.—A lady whom I attended has no nipple surmounting the areolæ of her breasts, their place being occupied by deep fissures. Milk is freely secreted after each accouchement, but none ever escapes. She has just been delivered of her fifth child, a girl, who presents the same malformation as the mother. I presume the affection in the mother to be congenital, as she never knew herself to be otherwise.

Ague.—In addition to the cases cited by Elliotson and Russell, is that by Schurigius, cited by Desormeaux, in *Dict. de Méd.* During, and after the paroxysm in the mother, the fœtus was much agitated, and the disease lasted for seven weeks after its birth. F. Hoffman had seen similar cases. Graetzer cites *Van Siebold's Journal*, vol. xvii, p. 318, for a case of the same kind.

Hypertrophy of the finger.—A case of this kind, illustrated by an engraving, occurs in the *Dublin Journal* for 1840. It is, I think, the ring finger of the left hand, which is enormously enlarged.

Fungus hæmatodes.—A case is related by Dr. Flint in the *New England Journal of Med. and Surg.* vol. ix, 1820, p. 112, which he considers of this kind. The tumour was situated on the back of the head. On p. 103 of the Philadelphia edition of Montgomery, On the Signs and Symptoms of Pregnancy, the following passage occurs. "The writer lately attended a post mortem examination of a child which had lived only nine weeks; at birth an unusual fulness was observed about the perineum and anus, which increased rapidly until these parts became greatly protruded, and a tumour was formed of the size of a very large orange; convulsions came on, and the child died after much suffering. The tumour, on examination, was a perfect specimen of fungus hæmatodes, and the earliest instance of the disease known to the writer. In this case the mother was in the habit of eating brown paper during her pregnancy."

In this Journal for Jan. 1841 (N. S.) is a case of congenital fungus hæmatodes, by Professor Drake, in a child two days old. The disease occupies the whole of the left nates, which is swelled out into a great, shining, globoid tumour, rendered irregular by tuberous elevations. It extends from the perineum, anus, and vulva, to the sacrum and spine of the ileum, so as to involve the acetabulum. Its colour is deep red; many of the cutaneous veins are much enlarged. A portion of the skin had suffered abrasion, and considerable hemorrhage had already occurred. Some parts of the tumour are hard, others soft; the general mass felt hard; it was tender under the hand. The child was lean, but seemed to be in health, and was free from tumours or malformations elsewhere. *West. Journ. Med. and Surg.*, July, 1840.

Congenital malformation of joints.—Adams, in *Dub. Med. Journ.*, July, 1840, p. 503, of the bones of the elbow.

Œsophagus.—Warner, in *Lancet*, June 20, 1840, p. 463. The pharynx terminated in a cul de sac; the œsophagus also ended in one at a distance of an inch and a half upward from the stomach. In the intervening space no trace of it could be found. The child died on the fourth day.

Stomach.—A case of congenital scirrhus of the stomach, by J. Williamson, M. D., is recorded in the *Edin. Monthly Journ. of Med. Sci.*, No. 1, vol. i, Jan. 1841. A male infant died at the age of five weeks. Though born plump and apparently healthy, vomiting came on in a few days afterwards. During the last fortnight the bowels were obstinately constipated, the child emaciated, and died exhausted. The only disease was in the stomach. Its pyloric extremity felt hard and indurated, and its orifice was so much contracted as to admit scarcely a small probe. The mucous coat was slightly thickened, whilst scarcely a distinct remnant of the middle or muscular tunic existed. The submucous cellular tissue was so much hypertrophied and indurated as seemingly to be the only tissue contained between the mucous and peritoneal coats; transverse white bands appeared to stretch from the sub-peritoneal to the sub-mucous

cellular tissue through that which formerly constituted the middle or muscular coat. The parents of the child were healthy.

Transposition of viscera.—See this Journal for Aug. 1840, p. 443, 444, a case of transposition of the thoracic and abdominal viscera, with an unusual variety of the venous system, and a case of lateral transposition of the abdominal viscera alone. See also Reed in the *Ed. Med. and Surg. Journ.* for July, 1840, for some additional remarks.

Hernia.—Of the fallopian tubes and ovaria. Refer to Deneux. *Rech. sur les Hernies de lá Ovaire*, Paris, 1813. Meckel, *Path. Anat.* vol. ii, p. 429. Busch, *Neue Zeitschrift für Geburtskunde*, vol. viii, heft 2, p. 272.

Liver.—Kyll. *Brit. and For. Med. Rev.*, Oct., 1839, a case of ascites and hypertrophy of the liver.

Corrigenda.—The case of poisoning of the fœtus in utero, quoted from the *Amer. Journ. of Med. Sci.*, as by Dr. Warren, is incorrectly cited as to date and as to the author. It appears in the 5th vol. of that journal, from a German one, and is by Dr. D'Outrepont, of Wurzburg. The mother had encephalitis, and recovered. The fœtus, after being repeatedly agitated violently in the womb, was born, had a convulsion, and shortly afterwards died. *The brain and spinal marrow were inflamed.*

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